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RTD TODAY

Resources and Technology Division
Economic Research Service
U.S. Department of Agriculture, Washington, DC

A newsletter for employees
and colleagues of RTD

DECEMBER-JANUARY

FROM THE DIRECTOR'S OFFICE

As we enter a new year, I would like to share with you the priority research themes that RTD will emphasize in the coming year. The Section-by-Section Work Plan Reviews with RTD staff during 1992 provided an opportunity for in-depth dialogue on our research plans. I feel that this effort is reflected in the high quality of plans for the coming year, and I am encouraged by the feedback from the Administrator's Office on the review of our plans.

Comprehensive Resource Policy Evaluation

Analytic work is underway on conservation programs in anticipation of decisions to be made during the upcoming Clean Water Act reauthorization and development of the next Farm Bill. A number of reports are expected from our research under the Department's Water Quality Program. A comprehensive look at western water policy is also on the agenda and will soon be underway. These activities, coupled with the other comprehensive products identified in the Work Plan Reviews, should constitute an excellent body of research to support future policy decisions.

Economic Evaluation of Biodiversity and Sustainability

Implementation of the Endangered Species Act (ESA) has raised a number of issues for our research agenda including impacts of mitigation strategies to protect certain species of endangered salmon in the Pacific Northwest and in the Central Valley Project region of California. We will continue and expand our evaluations and inventory of the economic impacts and tradeoffs of implementation of the ESA. In many cases endangered species are viewed as indicators of declining biodiversity and sustainability of existing ecosystems. Likewise, agricultural land use issues both in this country and elsewhere have a strong landscape preservation or "countryside" dimension that is tied to the sustainability and diversity of existing land use systems. Our realigned research program gives new focus and emphasis to clarifying incentives for current production practices, evaluating the adoption of alternative technologies, and identifying production systems that are environmentally sensitive and sustainable.

FOOTNOTE: RTD Branch and other units are abbreviated in this letter, as follows:

Office of the Director (OD), Environmental and Health Risk Branch (E&HR), Land and Global Resources Branch (L&GR), Resource Policy Branch (RP), Water Branch (W), and Productivity and Emerging Technologies Branch (P&ET)

Information, Perceived Risk, and Food Safety

The newly formed Environmental and Health Risk Branch will assess the demand for and supply of human health and environmental quality related to agriculture and food production as well as examine health risk factors associated with agricultural chemicals used in farm production and food marketing. These research efforts will expand on RTD's involvement in the USDA's Pesticide Data Program (PDP), which is designed to provide a sound pesticide exposure assessment database for pesticide policy decisions and to inform the public on food safety. Our new research efforts will relate health/environmental characteristics of the food supply to agricultural production and marketing practices and estimate consumers' willingness to pay for environmental characteristics based on information available and perceived risk.

Environmental Costing/Accounting

RTD's program of productivity measurement is expanding to develop productivity indexes that incorporate environmental impacts of agricultural production. This work complements environmental valuation research that has been attempting to value (or cost) the off-site impacts of agricultural activities at the national and regional levels. These off-site impacts include water quality impairments and the degradation of ecosystems, wetlands, and freshwater and marine fishery resources.

These efforts are being given new focus and emphasis in our environmental costs and accounting effort. Our objective is to develop a framework for environmental accounts that provides information on the tradeoffs between agricultural and environmental services. We will establish a conceptual framework to provide a consistent set of environmental accounts, identify linkages between agricultural activities and environmental impacts, and value the environmental impacts. This approach will permit us to "cost out" the environmental impacts of policy decisions while moving toward comprehensive and consistent environmental accounts. A workshop to solicit input from a diverse group of policy and economics professionals is being arranged for this spring.

Commodity Program Decoupling/Green Resource Recoupling

Current research activities have been associated with assessing the implications of decoupling agricultural and trade programs. Yet, the nature of the next generation of programs that will affect agriculture has been given more limited attention. These "green recoupled" programs will focus on the environment, and be less tied to commodity program participation, e.g., Conservation Compliance. Our research efforts will focus on defining a set of generic policy options, identifying the critical attributes for which we can measure effects, and estimating the economic tradeoffs of the various policy options. In addition to considering new and modified policy options, the effort will also attempt to evaluate a broader set of policy criteria with respect to the impacts of "decoupling" and "green recoupling". A series of round table discussions to obtain broad input is being planned for this spring.

Technology Development, Transfer, and Adoption

Our investment over the last five years in building a RTD research program in technology is paying off as we see applications in a number of emerging issues including: adaptation to global climate change, trade and environment, water quality, environmental policy options, sustainable production systems, agricultural research, and irrigation and water policy. But we are also highlighting this research area because of recent technological and policy developments, especially in the area of biotechnology. The economic implications of regulatory policy developments both domestically and internationally, coupled with the agriculture sector impacts on output, competitiveness, environmental quality, and sustainability need to be identified and evaluated.

Geographic Information Systems

In recent years computerized systems for managing, integrating, and analyzing spatial data have become powerful tools for natural resource management and environmental planning. Given the growing interest in the United States and globally in the interface between agriculture and the environment, and in approaches to regulating agricultural activities to accomplish environmental objectives, it is increasingly important to have state-of-the-art technology in RTD to apply to analyses of these issues. Geographic Information Systems (GIS) technology can help us understand the environmental implications of agricultural policy, analyze the distributional consequences of environmental regulation in agriculture, and design well-targeted, cost-effective, environmental programs.

We are developing a GIS system within RTD, and are identifying and developing the GIS applications to an array of RTD policy issues that includes: Federal water quality policy options, future use of Conservation Reserve Program land, Swampbuster and Wetland Reserve Program issues, drought, the effects of global climate change and agricultural trade on the environment, and analyzing environmental health issues associated with agricultural chemicals.

J. A. M.
JOHN A. MIRANOWSKI

PROGRAM HIGHLIGHTS

SUSTAINABLE AGRICULTURE RESEARCH UPDATE

RTD's research program has emphasized long-term concerns about resource use and changes in environmental quality. The new research program on sustainable agriculture will reinforce this orientation. Indeed, the *raison d'être* of sustainable agriculture is the belief that conventional agricultural production systems may not be sustained in the long-term because of their consequences for environmental quality and because of their inability to achieve an equitable intergenerational allocation of resources.

Sustainable Agriculture and the Presidential Initiatives --

Research in progress under the USDA's Food Safety Data and the Water Quality initiatives focuses on questions pertinent to sustainable agriculture. This research includes:

- development of "bad" inputs/ "bad" output indicators (e.g., environmental indicators),
- the impact of alternative policies on and valuation of "bad" input use/ "bad" output production (e.g., fertilizer charge or other disincentive policies),
- the economic and/or environmental consequences of shifting a production regime (e.g., continuous corn to corn/soybean rotation), and of changing regulatory measures, and,
- factors explaining adoption of IPM and other production practices, including crop rotation and conservation tillage.

This research, however, is limited because it relies on databases collected for purposes other than sustainable agriculture research. For example, there is no means of identifying observations on the much touted "ridge till" in current ERS surveys. Even if these observations could be flagged, they occur with a very low frequency. Serious research on sustainable agriculture must utilize new databases containing observations on some of the emerging sustainable technologies.

A second limitation of ongoing research is its reliance on the "marginalist" paradigm for policy analysis. In many cases, the proposed sustainable technologies constitute a quantum change from conventional production technologies. The equation "sustainable agriculture = conventional agriculture minus some chemicals" (i.e., movement along an isoquant) simply does not hold. Rather, policy analysis should recognize the problem as one of switching from one distinct technology (conventional) to another (sustainable).

What About Intergenerational Equity? --

Sustainable agriculture research looks beyond conventional economic models that view sustainability as an "externalities" problem to focus on the underlying issue of intergenerational equity. An efficient path of resource depletion, given the existing intergenerational distribution of rights to those resources, is optimal only with respect to that existing distribution. Hence it may not be sustainable. Similarly, advocates of sustainable agriculture argue that the current system of farming is guilty of disregard for the interests of future generations. This suggests a need to address equity considerations in economic analyses of sustainability.

RTD's New Section --

The focus of work within the new Sustainable Production Systems Section will be to examine the economic tradeoffs associated with the adoption of sustainable agricultural systems, defined as systems of production which:

- reduce environmental damage in general and agrichemical use in particular,

- consider other intergenerational allocations of resources, and
- maintain the economic viability of farming and farm communities.

The Section's research program will include examination of agricultural and trade policies and programs that are seen to affect sustainable production systems and, by implication, the structure of the food-agricultural sector. Research will seek to determine the interactions between the current structure of production systems and supporting agricultural services as they relate to sustainability in the U.S. Environmental and intergenerational resource allocation effects of sustainable systems will also be evaluated.

The Fiscal Year 1993 Work Plan focuses on issue definition, on developing a database which can serve as a basis for future research, and research on some promising farming practices for sustainable agricultural production. An Agriculture Information Bulletin (AIB) on **Problems, Prospects and Strategies for Sustainable Agriculture in the U.S.** will develop a conceptual framework for sustainable production systems. Production systems evolve under the influence of resource endowments, consumer preferences, government policies and programs and available production techniques. The outcomes of these systems, when viewed broadly, include not only marketable output but environmental, economic and social effects with distributional consequences across groups of producers and consumers, and across time. The AIB will define sustainable agriculture's impact on the tradeoffs between these diverse outcomes.

The immediate objective of the database development effort is to produce a profile of sustainable production systems that describes sustainable farms and producers' perceptions of the benefits and costs of sustainable production systems. To accomplish this objective, we are beginning with a review of existing data sources, including results compiled from surveys conducted by the American Farmland Trust, Rodale Institute, and American Farm Bureau. The Section also will explore opportunities for collaborating on existing surveys that target sustainable farm operations. Another option is to design an independent national survey of alternative agriculture which would provide data to support future research.

A project to analyze the economics of adopting sustainable production practices has been initiated. Adoption of alternative farming practices is generally considered as an effective means to reduce excessive agricultural chemical use in order to enhance water quality and food safety with the least cost to society. A systematic economic evaluation of alternative farming practices will be conducted under this umbrella project, consisting of three studies. These studies are (1)developing a national accounting system of plant nutrients, (2) an economic and environmental assessment of the adoption of nitrogen inhibitors, and (3) estimating costs to producers of reducing agrochemical use in vegetable production.

In addition to RTD's research effort, staff have initiated jointly with the Commodity Economics Division (CED) a **Sustainable Agriculture Seminar Series** which has been quite successful, featuring speakers from universities, independent institutes, and from within ERS. RTD and CED staff collaborated on a **Symposium on Measuring Sustainability** at the AAEA meetings with inputs from economists, sociologists, and agricultural scientists. RTD and CED are also collaborating on an ongoing basis in **Agriculture In Concert with the Environment (ACE)**, EPA-CSRS funded cooperative research projects on sustainability. RTD staff helped to review the projects, and continue to be involved in project monitoring. Last February RTD Director John Miranowski participated as a member of the U.S. delegation to the OECD Ad Hoc Group on Agriculture and the Environment sponsored **Workshop on Sustainable Agricultural Technology and Practices** in Paris (**RTD Today, January-February 1992**). The Workshop grew out of concerns expressed during the Group's deliberations on the linkages between agriculture and the environment and the potential gains from agricultural policy reform in the OECD countries.

EVENTS AND ACTIVITIES

Great Plains Task Force --

Ralph Heimlich and Tim Osborn attended a meeting of an ad hoc task force convened by the Great Plains Agricultural Council (GPAC) to study what will happen to Conservation Reserve Program (CRP) land when contracts expire beginning in 1996. Tim presented results of USARM model simulations showing how much CRP land would return to production under varying scenarios for total U.S. demand. Ralph described current national and international policy developments that could contribute to the demand scenarios modeled. The group discussed future plans to analyze policy options that could mitigate the price, production, and environmental effects of CRP land returning to crop production.

The GPAC Task Force has been meeting since 1990 and hopes to have preliminary recommendations for the Council at this year's June meeting and final recommendations in a year. Tim and Ralph previously analyzed data from a national survey conducted by the Soil and Water Conservation Society for SCS to model producer's intentions for future use of CRP land. They summarized possible user acceptance of contract extensions, permanent easements, and other program options. Tim has also presented analyses from the GPAC Task Force to a USDA workgroup formed to recommend alternatives for the future of the CRP program. Additional simulations are planned for both groups that will use supplementary data gathered on a five percent sample of CRP contracts.

AAEA Meetings --

The American Agriculture Economics Association annual meeting was held in Baltimore, Maryland August 9-12. RTD staff was actively involved in the program. Those presenting selected papers included: Steve Crutchfield, Marc Ribaudo, LeRoy Hansen, and Ricardo Quiroga, **Economic and Environmental Impacts of Water Quality Restrictions on Agriculture: An Application to Cotton Farming**; Roy Darwin, **Land Values and Technological Change**; Daniel Hellerstein and Robert Mendelsohn, **A Theoretical Foundation for Applying Count Data Models to Measure Recreation Values**; Biing-Hwan Lin, LeRoy Hansen, and Stan Daberkow, **Substitutability of Crop Rotations for Farm Chemicals**; Bruce Larson and George Frisvold, **Environmental Policy Uncertainty and Innovation**; Arun Malik, David Letson, and Steve Crutchfield, **Point-Nonpoint Trading of Pollution Abatement: Choosing the Right Trading Ratio**; Richard Nehring and Agapi Samaru, **An Environmental Analysis of Orange Production In California and Florida, and Chemical Use, Profitability and Environmental Sustainability In Corn Production**; Michael Ollinger and Jorge Fernandez-Cornejo, **Firm Entry and the Incidence of Contracting In the Biotech Industry**; Tim Osborn, **Farmer Intentions for Post Contract Conservation Reserve Program Acres: A Two-Limit Tobit Analysis**; Ricardo Quiroga, **A Profit Function Analysis of Technological Change and Output Growth In Dairy Production**; Ricardo Quiroga and Boris E. Bravo-Ureta (U. Conn.), **Alternative Functional Forms for Dual Profit Models of Dairy Production**; Robbin Shoemaker, **Evolution of Distortions and Producer Welfare Gains from Deficiency Payments: U.S. Feedgrain Programs, 1977-1990**; David Westenbarger and George Frisvold, **Air Quality and Land Productivity In the Northeastern United States, 1980-1985**; Jet Yee, **The Impact of Public and Private Agricultural Research on Productivity**.

Participants in organized symposia include: Stan Daberkow, organizer, **Crop Rotations as Substitutes for Synthetic Chemicals: Prospects, Policies, and Implications**; Biing-Hwan Lin, Ann Vandeman, and Utpal Vasavada, organizers, **How to Measure the Effects of Sustainable Agriculture: Proposals and Critiques**; Betsey Kuhn, presenter, **Cultural Diversity: The Professional Status of Women and African Americans In Agricultural Economics**; Stan Daberkow, presenter, **Impacts of the Transition to a Market Economy: New Needs and Opportunities In Poland**; Robert Kellogg, discussant, **Integrating Spatial Information Into the Economic Decision Framework Using**

Geographic Information Systems (GIS).

In addition, Jorge Fernandez-Cornejo was moderator of the selected paper session, **Production Decision Making**; Robbin Shoemaker was moderator of the selected paper session, **Agricultural Policy, Trade, and Trade Negotiations**. RTD Director, John Miranowski, was an invited panelist for a discussion, **What Recruiters of Our Graduates Want**, at the Graduate Education Program Workshop, and was a discussant at the invited paper session, **Trade and the Environment**. Associate Director, Carol Kramer, was a facilitator at a free session, **U.S. Agriculture In 2012: Clear Visions of a Cloudy Future**. Tracy Dunbar was a presenter at the free session, **Racial and Ethnic Diversity in Agricultural Economics: How Can It Be Achieved?**

RTD posters included: **Input Use In Vegetable Production: A Summary of the 1990 Vegetable Chemical Use Survey** by David Shank, Ann Vandeman, and Ram Chandran; **Agricultural Activities and Chemical Use on the Delmarva Peninsula: Are They Related to Resource Characteristics?** by Russ Keim and Robert Kellogg; and **Agricultural Use of Pesticides and the Potential for Groundwater Contamination** by Robert Kellogg, Margaret Maizel (National Center for Resource Innovations) and Don Goss (Texas A&M)

RTD is also especially proud that Marca Weinberg, Resource Policy Branch, was awarded the AAEA Outstanding Ph.D. Dissertation Award.

Organizational Changes --

The organizational realignment of RTD's research program became effective at the beginning of Fiscal Year 1993. The reason for the organizational changes were discussed briefly in the last issue of **RTD Today**.

The new organization has five branches (see next page). The most dramatic change in the branches is the restructuring of the previous Agricultural Inputs Branch program to form the Environmental and Health Risk Branch. This Branch will examine in a broad-based manner the economics of alternative policy options to reduce health and environmental risk. The Branch will assess the demands for human health and environmental quality as they relate to agriculture and food production and examine health-risk factors associated with farm production and marketing practices. The response of the agricultural sector will be investigated as this sector adapts to changes in policies at the local, State, Federal, and international levels, as well as to changes in consumer demands.

The new Land and Global Resources Branch (formerly Land and Capital Assets) reflects new responsibilities in global climate change, adding sections on Global Resource Impacts and Domestic Resource Impacts. Land values and ownership research have been merged into one section. The new Productivity and Emerging Technologies Branch (formerly Resource Indicators) has added a section, Sustainable Production Systems, to give new focus to this important issue (see Program Highlights in this issue of **RTD Today** for more detail on this Section's program). The Water Branch has an added section, Water Quality Evaluation, which redirects previous soil conservation efforts to meet expanded responsibilities under the President's Water Quality Initiative. A number of sections have been renamed to be more reflective of evolving research and analysis activities.

The second major substantive consequence of the program realignment has been the establishment of "Coordinator" positions. Given the cross-branch nature of new and redirected activities, it has been necessary to establish "Core Teams" for water quality, food safety, global change, geographic information systems (GIS), energy, and surveys to coordinate program activities (including research, evaluation, and database development) not only across RTD but also with other USDA and Federal agencies. "Coordinator" positions are established under the Branch Chiefs who are directing the "Core Teams". A similar position is being formally established for situation and outlook activities.

Resources and Technology Division

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Office of the Director

Director -- John A. Miranowski
Secretary -- Denice A. Bess

Associate Director -- Carol S. Kramer
Deputy Director for Technology -- Vacant
Deputy Director for Policy Research and Staff Analysis -- Margot Anderson
Assistant Director for Economics and Communications -- William Anderson
Assistant to the Director for Administration -- Leslie C. Lowstuter
Assistant to the Director for Policy -- Kenneth Robinson
Secretary -- Tammie Johnson
Secretary -- Cynthia Ray

	Productivity and Emerging Technologies Branch	Resource Policy Branch	Water Branch
	Chief -- Michael LeBlanc Office Manager -- Nicole Stafford	Chief -- Nicole Ballenger Office Manager -- Bridget Struggs	Chief -- Bill Hyde Office Manager -- Lucille Milligan
	Section/Leader Land Values and Ownership -- Robert Atkinson	Section/Leader Environmental Policy -- Vacant	Section/Leader Western Water Policy -- Michael Moore
	Section/Leader Global Resources Impacts -- - Vacant	Resources and International Policy -- Margot Anderson	Water Demand and Conservation -- Vacant
	Risk Management and Policy Analysis -- Vacant	Agricultural Research and Technology -- Margriet Caswell	Environmental Valuation -- Steve Crutchfield
	Demand for Risk Reduction-- Fred Kuchler	Resources Information Systems -- Merritt Padgett	Water Quality Evaluation -- Vacant
88	International Environmental and Health Risk -- Vacant	Land and Capital Use -- Abe Tegene	Technology and Economic Policy -- Robbin Shoemaker
	Resource Situation and Outlook Coordinator -- Stan Daberkow	Sustainable Productions Systems -- Vacant	Endangered Species Act Evaluation Coordinator -- Vacant
	Pesticide Data Program Coordinator -- Vacant	Survey and Database Coordinator -- Vacant	Energy Policy Coordinator -- Jim Hrubovcak
	Water Quality Coordinator -- Marc Ribaudo	Water Quality Coordinator -- Ralph Heimlich	Geographic Information Systems Coordinator -- Ralph Heimlich

PEOPLE

Welcome to ...

- Rachel Beattie (RP), M.S. in Agricultural Economics from University of California at Davis, B.S. in Environmental Studies, Yale University, who joined the Office of the Branch Chief.
- Peter Condon (L&GR), B.A. in Economics from Harvard University, who joined the Global Resources Impacts Section.
- Kelly Eakin (RP), formerly Department of Economics, University of Oregon, who joined the Environmental Policy Evaluation Section.
- Keith Fuglie (P&ET), formerly Rockefeller Foundation Research Fellow in Social Sciences, International Potato Center (CIP), Tunisia, who joined the Agricultural Research and Technology Assessment Section.
- Kimberly Glenn (OD), formerly with the Agricultural Stabilization and Conservation Service, USDA, who is an Office Automation Assistant in the Office of the Director.
- Ralph Heimlich (RP), who rejoined RTD from the Office of Policy and Program Evaluation, Environmental Protection Agency, as the new Geographic Information Systems Coordinator.
- Tracy Irwin-Hewitt (P&ET), M.S. in Agricultural Economics, B.A. in Economics, Michigan State University, who joined the Sustainable Production Systems Section.
- LeVale Jenkins (OD), formerly with Office of Personnel, USDA, who is an Office Automation Clerk in the Office of the Director.
- Tammie Johnson (OD), formerly at Resources for the Future, who is a Secretary in the Office of the Director.
- Sarah Lynch (E&HR), formerly Consultant, International Science and Technology Institute, who joined the Demand for Risk Reduction Section.
- Steven Nako (E&HR), Ph.D in Economics, University of Pennsylvania, who joined the Demand for Risk Reduction Section.
- Katherine Ralston (E&HR), Ph.D. in Agricultural and Resource Economics, University of California at Berkeley, who joined the Demand for Risk Reduction Section.
- Vanessa Sandidge (OD), who joined the Office of the Director as a Clerk.
- David Schimmelpfennig (L&GR), Ph.D. in Economics, Michigan State University, who joined the Global Resources Impacts Section.
- Nicole Stafford (P&ET), formerly with the Economics Management Staff, who is the new Branch Office Manager.
- Philip Szmedra (E&HR), who returned from a Peace Corps assignment in Morocco, and joined the International Environmental and Health Risk Section.

- Keith Wiebe (L&GR), formerly Research Associate, Land Tenure Center, University of Wisconsin, who joined the Land and Capital Use Section.

Appointment Changes ...

- Margot Anderson (OD), has been named Deputy Director for Policy Research and Staff Analysis.
- Stan Daberkow (E&HR), has been named Resource Situation and Outlook Coordinator.
- Jim Hrubovcak (RP), has been named Energy Policy Coordinator.
- Fred Kuchler (E&HR), is the new Leader, Demand for Risk Reduction Section.
- Betsey Kuhn (L&GR), is the new Chief of the Land and Global Resources Branch

Farewell to ...

- Bill Crosswhite (W), who retired after 28 years of service.
- Tracy Dunbar (W), who is pursuing graduate studies at Michigan State University.
- John Hostetler (W), who retired after 32 years of service.
- Robert Kellogg (RP), who accepted a position with the Soil Conservation Service.
- Olaf Kula (L&GR), who accepted a position in Niger with the National Cooperative Business Association.
- Rita McMillan (P&ET), who is pursuing graduate studies at the University of Florida.
- John Reilly (L&GR), who has an Intergovernmental Personnel Act appointment with the Center for Energy and Environmental Policy Research at Massachusetts Institute of Technology.
- Matt Rendelman (RP), who accepted a position with the Animal and Plant Health Inspection Service.
- Denise Rogers (L&GR), who accepted a position with the Minnesota Housing Finance Agency in St. Paul.
- James Tobey (RP), who accepted a position at the Organization for Economic Cooperation and Development (OECD) in Paris.

Our Interns

- Chris Behr (L&GR), who returned to the University of Wisconsin.
- Lisa Boyer (L&GR), who returned to South Carolina State College.
- Keith Burberry (P&ET), who entered graduate school at the University of Kentucky.
- Jessica Eide (P&ET), who returned to Oregon State University.
- Carolyn Farris (OD), who returned to Kansas State University.

- Carolyn Fischer (L&GR), who returned to the University of Michigan.
- Christina Fredericks (E&HR), who entered graduate school at the University of California at Davis.
- Phuong Hoang (OD), who returned to the University of Wisconsin.
- Rebecca Johnston (P&ET), who returned to Ohio and will enter graduate school at the University of Chicago in 1993.
- Ryan Moorhart (E&HR) who returned to South Carolina State College.
- Endi Piper (RP) who returned to the University of Virginia.
- Paris Reidhead (P&ET), who returned to Cornell University.
- Barbara Senatre (RP), who returned to Purdue University.
- Ellen Stroud (OD), who returned to Roanoke College.
- Cynthia Tyler (OD), who returned to Ohio University.
- Anne Young (P&ET), who returned to Spelman College.

and

- Ken Abrams (OD), who accepted a one year teaching position in Czechoslovakia.
- Shanika Hichman (OD), who entered the University of the District of Columbia.

Congratulations to..

- Ralph Heimlich (RP), who was named a Berg Fellow for 1992, at the Soil and Water Conservation Society Annual Meeting.
- Marca Weinberg (RP), who received the American Agricultural Economics Association Outstanding Ph.D. Dissertation Award, at the AAEA Annual Meeting.

PUBLICATIONS

(October 1991 - September 1992)

ERS/USDA PUBLICATIONS

Monographs

Bajwa, Rajinder, William Crosswhite, John Hostetler, and Olivia Wright. Agricultural Irrigation and Water Use. Agriculture Information Bulletin No. 638. January 1992. 116 pp.

Butler, Gertrude and J. Peter DeBraal. Foreign Ownership of U.S. Agricultural Land Through December 31, 1991: County-Level Data. ERS Staff Report No. AGES 9217. May 1992. 128 pp.

Canning, Patrick. Farm Buildings and Farmland: An Analysis of Capital Formation. Technical Bulletin No. 1801. February 1992. 50 pp.

DeBraal, J. Peter. Foreign Ownership of U.S. Agricultural Land Through December 31, 1991. Staff Report No. AGES-9211. April 1992. 60 pp.

Kane, Sally, John Reilly, and James Tobey. Climate Change: Economic Implications for World Agriculture. Agricultural Economic Report No. 647. October 1991. 21 pp.

Knudson, Mary and LeRoy Hansen. Intellectual Property Rights and the Private Seed Industry. Agricultural Economic Report No. 654. November 1991. 19 pp.

Ribaudo, Marc O. and Daniel Hellerstein. Estimating Water Quality Benefits: Theoretical and Methodological Issues. Technical Bulletin No. 1808. September 1992. 28 pp.

Rogers, Denise. Leasing Farmland in the United States. Staff Report No. AGES-9159. January 1992. 16 pp.

Wunderlich, Gene. Owning Farmland in the United States. Agriculture Information Bulletin No. 637. January 1992. 14 pp.

Periodicals

Douvelis, George (Coord.). Economic Indicators of the Farm Sector: Production and Efficiency Statistics, 1990. ECIFS 10-3. May 1992. 49 pp. Contributors to the report are:

Thelma Anderson
Harold Taylor

Arthur Daugherty
Marlow Vesterby

George Douvelis
Rachel Evans

Wunderlich, Gene and Jim Carlin (Eds.). Journal of Agricultural Economics Research. Vol. 43, Nos. 3, 4. 1991.

Articles

Heck, W., D. Ratloff, and G. Frisvold. Air Quality and the Productivity of Crops and Forests. Agriculture and the Environment. 1991 Yearbook of Agriculture. USDA. GPO. Washington, D.C. 1991. pp. 107-119.

Heimlich, Ralph E. and Arthur B. Daugherty. American's Cropland: Where Does it Come From? Agriculture and the Environment. 1991 Yearbook of Agriculture. USDA. GPO. Washington, D.C. 1991. pp. 3-9.

Situation and Outlook

Periodicals

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Len Bull
Herman Delvo

Mohinder Gill
Harold Taylor

Noel Uri
Marlow Vesterby

Hexem, Roger. (Coord.) Agricultural Resources: Agricultural Land Values. Situation and Outlook Summary. April 1992. 7 pp.

Hexem, Roger. (Coord.) Agricultural Resources: Agricultural Land Values and Markets. Situation and Outlook Report No. AR-26. June 1992. 47 pp. Contributors to the report are:

Patrick Canning
John Jones

J. Peter DeBral
Fred Kuchler

Roger Hexem
Felix Llacuna

Padgett, Merritt (Coord.) Agricultural Resources: Cropland, Water, and Conservation. Situation and Outlook Report. No. AR-27. September 1992. 38 pp. Contributors to the report are:

Marcel Aillery
Dwight Gadsby
Richard Magleby
Carmen Sandretto

Arthur Daugherty
Noel Gollehon
C. Tim Osborn

Clifford Dickason
John Hostetler
William Quinby

Articles

Babula, Ronald A., Douglas Duncan, and Utpal Vasavada. Regional Responsiveness of Agricultural Interest Rates to U.S. Treasury Bill Rates. Agricultural Income and Finance. Situation and Outlook Report No. AFO-43. December 1991. pp. 37-41.

Crosswhite, William and Carmen Sandretto. Trends In Resource Protection Policies In Agriculture. Agricultural Resources: Cropland, Water, and Conservation. Situation and Outlook Report No. AR-23. September 1991. pp. 42-49.

Daugherty, Arthur. Flex Acres and Cropland Use. Agricultural Outlook. AO-180. ERS, USDA. November 1991. pp. 25-27.

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Outlook Report No. AR-24. October 1991. pp. 39-46.

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Lin, Biing-Hwan, LeRoy Hansen, Stan Daberkow, and Michael Dreitzer. **Substitutability of Crop Rotations for Agrochemicals: Preliminary Results.** Agricultural Resources: Inputs. Situation and Outlook Report No. AR-24. October 1991. pp. 24-29.

Osborn, C. Tim. **CRP Enrollment Continues Eastward Shift.** Agricultural Outlook. AO-179. ERS, USDA. October 1991, pp. 22-24.

Rendleman, Matt. **Corn's Link to Sugar: HFCS.** Agricultural Outlook. AO-178. ERS, USDA. September 1991. pp. 12-14.

Ribaudo, Mark and Danette Woo. **Summary of State Water Quality Laws Affecting Agriculture.** Agricultural Resources: Cropland, Water, and Conservation. Situation and Outlook Report No. AR-23. September 1991. pp. 50-54.

Rogers, Denise M. **Characteristics of Farmland Owners and Their Participation in the Farmland Market, 1970-1988.** Agricultural Resources: Agricultural Land Values and Markets. Situation and Outlook Report No. AR-26. June 1992. pp. 43-47.

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